

not the requisite knowledge among natives in India; the work must be done in this safer climate, and the specimens can be better preserved here than in the museums of the hot plains, or those which may be formed in the damp regions of the hills.

HYDE CLARKE

St. George's Square, S.W.

Instinct

Moving in a Circle

IN your last week's number a letter appeared with the initials N. Y., in which it was stated that it is believed in North America that a lost man always strays in a circle towards the left. I may mention that whilst walking in a woody and hilly part of the New Forest, I found, to my great astonishment, that I had described a complete circle, and it was towards the left. My father also tells me that he has been informed (although under what circumstances he does not recollect) that the same idea obtains in Australia. It has been suggested that the reason of this fact (if fact it is) is, that the right side of the body is stronger than the left; in confirmation of the truth of this explanation, it is worthy of notice that Dr. Wm. Ogle (in a paper on Dextral Pre-eminence, *Medico-Chirurgical Transactions*, vol. liv.) finds that men are right-legged as well as right-handed, although the rule has not so universal an application. One of the points adduced by him in evidence is that bootmakers generally find the right foot larger than the left.

If any of your readers who have strayed in a similar manner, would take the trouble to write to you merely stating whether they wandered to the right or the left, it is possible that a sufficient body of facts might be collected either to confirm or disprove this curious belief.

GEORGE DARWIN

Down, Beckenham, April 29

Perception in Dogs

PERHAPS you will think that the following story of a Mentone dog, Pietrino, is worth adding to the similar stories which have appeared in your columns:—

The Archduchess Marie Régnier passed the winter of 1871–2 at the Hotel Victoria in Mentone. While there she became much attached to a spaniel belonging to M. Milandri, the landlord, and on her return to Vienna in the spring she took the dog there. Not long after, the dog reappeared at the hotel in Mentone, having returned on foot a distance of nearly one thousand miles over a country totally unknown, excepting having once traversed it by rail. The fatigue caused the poor fellow to die a few days afterwards, and Pietrino is honoured with a grave and a monument in the hotel gardens.

I send you a French paper containing the same facts.

JAMES B. ANDREWS

Villa d'Adhemar, Mentone, April 17

PERHAPS the following anecdote on the instinct of dogs, which has lately come to my knowledge, may prove of interest to some of your readers.

A family residing in Yorkshire possessed two dogs, one a mastiff, and the other a small dog. The owner, visiting Hastings, took the little dog with him, and at the house where he stayed there was a larger animal, who, disregarding the laws of hospitality, woefully maltreated his youthful visitor. The little dog, upon this, disappeared, and in a few days returned, bringing with him the mastiff from Yorkshire, which set upon the Hastings dog and thrashed him to within an inch of his life. Having performed this piece of retributive justice he returned to his home in the north, while the little dog stayed to rejoice over his fallen antagonist.

A. PERCY SMITH

Rugby, April 18

Prehistoric Art

MR. SEARLE V. WOOD's inquiry (*NATURE*, vol. vii. p. 443) whether any existing race of savages is capable of depicting animals with the spirit and fidelity of the supposed contemporary representations of the mammoth is a most pertinent one, but must be answered in the affirmative. In the Atlas to Gustav Fritsch's great work on the Aborigines of South Africa, just published at Berlin, will be found reproductions of delineations of animals, executed in caves by the Bushmen, which are certainly equal to the carvings and tracings of the prehistoric period. The originals are usually painted, but sometimes carved or scratched in sandstone or some other soft material. Five different colours are employed; the

objects represented are usually the animals indigenous to the country, but the human figure is occasionally introduced, and since the arrival of the European colonists, horses and even ships have been added. It is most remarkable to find the Bushmen in this respect so far in advance of the comparatively civilised negro, who has never of his own impulse produced anything approaching to the merit of these designs. Perhaps some of your contributors will be able to state whether any corresponding difference exists in the cerebral organisation of the respective races.

R. G.

London, April 19

April Meteors

IN continuation of my report sent you yesterday in reference to the April meteors of this year, I desire to add the following. The evening of April 21 being clear, a watch was sustained from 9^h to 12^h, during which time 14 shooting-stars were seen. These, with the 20 observed on the two previous evenings, make the total number seen 34 in 7½ hours of observation. The details of the meteors noticed on April 21 are as under:—

Ref. No.	Date.	Time.	Beginning.	Ending.
			R. A. D.	R. A. D.
21 ...	April 21 ...	9.8 1½ mag. *	256° 54°+	236° 32°+
22 ...	" ...	9.10 2nd mag. *	299 38½+	309 38+
23 ...	" ...	9.29 3rd mag. *	310 59+	319 58+
24 ...	" ...	9.41 3rd mag. *	239 61+	270 63+
25 ...	" ...	9.57 2nd mag. *	263 50+	238 47+
26 ...	" ...	10.22 3rd mag. *	273 51+	273 61+
27 ...	" ...	10.30 4th mag. *	325 68+	328 60+
28 ...	" ...	10.32 4th mag. *	264½ 61+	255 55+
29 ...	" ...	10.50 4th mag. *	319 6½+	339 66+
30 ...	" ...	11.7 a Lyrae	293½ 45+	309 49+
31 ...	" ...	11.16 3rd mag. *	278 49+	270 59½+
32 ...	" ...	11.32 4th mag. *	275 14+	283 12+
33 ...	" ...	11.40 3rd mag. *	284 59+	270 47+
34 ...	" ...	11.45 4th mag. *	334 47+	341 41+

Nos. 22, 25, 26, 30, and 31 were from the radiant near a Lyrae. On April 19 and 20 the largest proportion of meteors were Lyraids, but on April 21 they were in a minority. Nos. 21, 23, 24, 33, and 34 were conformable to a radiant at α Draconis, R.A. 283°, D. 59°+, and it is worthy of note that on the two preceding nights there were no indications of this radiant point. To sum up my recent observations, it would seem that from the various meteoric tracks noted, the April shooting-stars of this year had three well-marked centres of radiation, viz., (1) near a Lyrae, (2) near Arcturus, and (3) at α Draconis (R.A. 283°, D. 59°+). There were also evidences of at least two other radiant points that, owing to the paucity of meteors, could only be approximately ascertained, viz., (1) near ζ Draconis, and (2) near a Cygni. The brightest meteor seen on April 21 was a Lyraid; time, 11^h 7^m. Its path was accurately fixed. The meteor first appeared at 1° N. of δ Cygni, and travelling to N., disappeared in a small triangle of stars 5° N. of a Cygni. Several of the meteors emitted sparks in traversing their courses, but the majority were small objects of very brief duration.

The foregoing particulars (taken in conjunction with my previous letter) may be useful in determining the radiant point of the April meteors, especially with regard to those diverging from Lyra, which, I believe, are considered identical with Comet I. 1861. I fixed this point at R.A. 274°, D. 37°, which is nearly of accord with the result of Karlinski (1867), R.A. 278°2 D. 34°5+, and of Prof. A. Herschel (1864), R.A. 277°5, D. 34°6+.

Bristol, April 22

WILLIAM F. DENNING

A proposed new Barometer

IN the number of the *Philosophical Magazine* for May 1871 is an article by Prof. Heller, of Ofen, rendered (carelessly enough) from Poggendorff's *Annalen*, describing a balance fitted with nearly equal weights of very different volumes, which he proposes as a barometer. He says that the principle on which it is founded "has not hitherto been used in barometric measurements." This is not quite correct; a balance, absolutely identical in principle, is described by Boyle in vol. i. p. 231, of the *Philosophical Transactions*, under the title of "A new Statical Baroscope." It would seem that the practical difficulty of keeping it in accurate adjustment has been and still will be a bar to its use in the way the two inventors have proposed; otherwise, it might perhaps be advantageously employed in mountain surveys; it would, at any rate, be free from many of the objections to the aneroid.

Considered, however, as an exact barometer, I would main-

tain that the principle is altogether erroneous, depending as it does on the assumption that the pressure of the atmosphere is purely a function of its specific gravity or density. This is not true, for pressure may vary within wide limits, whilst the density remains unchanged. Experimentally this might be shown by putting, say, an aneroid and a balance, such as I have been speaking of, in a large glass vessel, which can be made air-tight when closed. Under normal conditions the two will at first register the same pressure; but if the temperature is sufficiently increased or diminished, the increase or diminution of elastic force will manifest itself by the aneroid; but as the density remains unaltered, the balance will show no change. Does such an experiment at all correspond with any natural observations? I think so, in, of course, a limited degree. If the lower part of a column of air is heated, its expansive force will push the adjacent air outwards and upwards; but as it does so, it has to overcome a certain amount of inertia; to do this requires time, during which, as the volume of the heated air does not increase in proportion to the temperature, the elastic force does. This ought to be shown by the barometer; I think it often is, but the barometer is a sluggish instrument at best, and its indications are undoubtedly wanting in quickness, and therefore in exactness. Still its principle is correct; so is the principle of the aneroid, or of Bourdon's barometer (on which there is an interesting paper in the *Quarterly Journal* of the Meteorological Society for April 1872), though practical difficulties stand in the way of their use becoming general. But the tangent balance is not capable of measuring atmospheric tension, except when that tension depends on density alone; and this is frequently not the case—perhaps never.

J. K. LAUGHTON

April 23

Acquired Habits in Plants

AT p. 446 of NATURE, J. G. records a "dog violet" which he thinks has assumed an unusual form. As there are several plants called "dog violet," and as one of them does in favourable situations attain a very considerable height, it would be interesting to know what was the species observed by the river Aled. The *Viola canina* (*V. riviniana* Reich.), in one of its forms which is probably a distinct species, has flowering shoots which sometimes attain a foot in length, and if supported by the surrounding vegetation do sometimes stand nearly upright. If this was the plant observed, J. G. only found a more than usually strong form.

C. C. BABINGTON

The Zodiacal Light

MR. BACKHOUSE asks if the observations given in vol. iii. p. 203, afford any proof that the Zodiacal Light is not a lens-shaped disc of light enveloping the Sun; if this theory were correct, and the sun enveloped in a continuous mass of light-reflecting matter, whenever the light is seen in the evening after sunset, it ought to be also seen in the morning before sunrise, of the same brilliancy at the same angular distances from the sun, especially when those distances are small, for then the effect of an elliptical form in the section of the envelope by the plane of the ecliptic would be almost entirely eliminated.

The results of observation given in most of our hand-books of astronomy are therefore directly at variance with this theory, and I did not consider it necessary to allude to it before.

Jamaica, April 6

MAXWELL HALL

ON VENOMOUS CATERPILLARS *

POISON and venom are often used as convertible terms. I do not understand them to be so. Poison properly means something which injures the system by introduction through the stomach. Venom, something which injures by introduction into the vascular system through lesion of the tissues. Most poisons are also venoms; whatever injures, if introduced into the stomach, will most probably also injure if introduced directly into the blood. But the converse is not true: most venoms are not poisons, that is, it is not by digestion and assimilation that they work, but by entering the vascular system from without. It is said that you may swallow the venom of the rattlesnake with impunity; and I imagine you may, if it does get absorbed through the mucous membrane; but Dr. Fayer's experience, lately published, of the effects

* A paper read at the opening of the Kensington Entomological Society.

of the semi-swallowing, which occurs in extracting the venom from a poisoned wound by sucking, would rather seem to show that such extremely virulent venom would penetrate the mucous membrane, and act as if actually introduced by a wound, his throat having become dangerously ulcerated from sucking the poison from the wound of a man bitten by a cobra. There is yet another way than swallowing or being wounded, by which venom may injure, and that is through the nervous system, by application to the skin. This is the way in which the nettle must sting. In that case there is not the smallest lesion in the skin, and if a nettle were artistically made to touch the open surface of a gaping wound, it would not sting at all; neither is it by mechanical irritation that the pain is caused. The nettle has a venom gland, as well as the rattlesnake, and it is the application of this venom to the delicate termination of the nerves in the skin which produced the pain felt.

The subject to which I invite the consideration of the Society this evening is whether any insects possess similar power of injury to that of the nettle. In ordinary cases the venom of insects is applied by a puncture in the skin, into which the venom is introduced by an apparatus provided for the purpose. But for a long time it has been said that certain caterpillars sting like the nettle, although the authorities have for the most part been too vague to allow us to be very sure as to the fact; and supposing the fact to be true, it has been argued that the pain or annoyance was merely the result of mechanical irritation of a similar nature to that which medical men sometimes meet with in hairdressers, or rather hair-cutters, where minute portions of the cut hair of their customers work their way into the skin below the shirt-sleeve and give rise to a painful and irritating sore on the wrist. Two passages which I shall take leave to quote, will bring the question, as it at present stands, pretty fairly before the meeting. The first is from a paper by myself on the geographical relations of the chief Coleopterous Faunas, which was published in the Linnæan Society's Journal for 1870 (p. 55):—

"A very remarkable African affinity in the Lepidoptera has been mentioned to me by Dr. Welwitsch. It is plain that an affinity to any genus endowed with peculiar properties is rendered doubly certain if the supposed allied species possesses the same properties. There is a Lepidopterous insect in Australia, the larva of which possesses remarkable poisonous powers. It has been named *Dorato-phora vulnerans*. Such insects also occur in South Africa. Livingstone speaks of a caterpillar called *Rigura* as producing fearful agony if a sore is touched with its entrails. Mr. Baynes, in his "Explorations in South-west Africa," speaks of another, or perhaps the same, which he calls the *Kaa*, and which is used as a poison for their arrows by the Bushmen; and Dr. Welwitsch had a personal experience of the severe swelling and pain in every part of his body which he touched with his hand after collecting specimens of a caterpillar against which he had been warned as poisonous. He had in consequence of the warning carefully avoided touching them, shoving them into a phial with a straw; but whether he had inadvertently touched them or fingered the leaves on which they had been feeding (which he collected for examination), he and his servant were both laid up helpless for two or three days. His specimens of the caterpillar were lost; but among his Lepidoptera Dr. Fendler of Vienna, who has undertaken a description of them, finds no less than four species of *Dorato-phora*, and these, doubtless, are the perfect insects of species of the caterpillar, from one of which he suffered."

The second passage which I wish to quote is from a paper by Mr. Roland Trimen, Notes on the above paper, and also published in the Linnæan Society's journal. It is as follows:—

"At p. 55 Mr. Murray notes what he considers 'a very